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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,211	08/31/2006	Vaughan Morrill JR.	QUQU 8303W1	1435
1688	7590	12/23/2008	EXAMINER	
POLSTER, LIEDER, WOODRUFF & LUCCHESI			SNELTING, ERIN LYNN	
12412 POWERSCOURT DRIVE SUITE 200				
ST. LOUIS, MO 63131-3615			ART UNIT	PAPER NUMBER
			1791	
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			12/23/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/591,211	MORRILL ET AL.	
	Examiner	Art Unit	
	Erin Snelting	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 31 August 2006.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 11-15,27-32,37 and 38 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 11-15,27-32,37 and 38 is/are rejected.
 7) Claim(s) 38 is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 31 August 2006 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date <u>03/09/2007</u> .	6) <input type="checkbox"/> Other: _____ .

DETAILED ACTION

Claim Objections

1. Claim 38 is objected to because of the following informalities: the claim is written to be dependent upon Claim 34, which claim has been cancelled. For purposes of examination, examiner assumes Claim 38 is dependent upon Claim 37. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Senapati '926 (US Patent No. 6,128,926).

4. Regarding claim 11, Senapati '926 teaches:

a. a heating chamber having a single inlet and a single outlet (“furnace 14” and “die 16”, column 5, lines 8-9, see also Fig. 1)

b. a step of pushing a solid glass rod into the inlet (column 5, lines 9-10)

c. a step of pulling a shape from the outlet (column 5, lines 12-14)

d. inlet comprises a heated cone melting the exterior of the rod (column 5, lines 6-11, see also Fig. 1, item 16 “die”)

e. forming a molten glass seal at the inlet (column 5, lines 10-11, see also Fig. 1—Please note that since melted glass is being forced through the die inlet

and the glass preform is larger than the die inlet, a molten glass seal is inherently formed at the inlet).

5. Regarding claim 12, Senapati '926 teaches:

- a. a heating chamber having a single inlet and a single outlet ("furnace 14" and "die 16", column 5, lines 8-9, see also Fig. 1)
- b. a step of pushing a solid glass rod into the inlet (column 5, lines 9-10)
- c. inlet comprises a heated cone melting the exterior of the rod (column 5, lines 6-11, see also Fig. 1, item 16 "die")
- d. forming a molten glass seal at the inlet (column 5, lines 10-11, see also Fig. 1—Please note that since melted glass is being forced through the die inlet and the glass preform is larger than the die inlet, a molten glass seal is inherently formed at the inlet).

6. Regarding claim 13, Senapati '926 teaches the inlet has a diameter slightly smaller than the diameter of the rod (see Fig. 1, item 13 "glass preform" and item 16 "die").

7. Claims 27 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Coucoulas '771 (US Patent No. 4,372,771).

8. Regarding claim 27, Coucoulas '771 teaches:

- a. heated chamber having an outlet ("annular opening 13", column 2, line 7 and "chamber 11 to form a heat zone 19", column 2, line 19)
- b. hollow inner forming tube extending from the vicinity of the outlet, within an inside dimension of the die ("mandrel 15", column 2, line 8, see also Figs. 1-4)

- c. through a gland in a wall of the chamber ("aperture 16", column 2, line 8).

9. Regarding claim 30, Coucoulas '771 teaches:

- a. the chamber is filled with molten glass ("molten mass 21", column 2, lines 21-22)
- b. glass being cooler adjacent the gland and adjacent the die than the average temperature of the glass in the chamber ("coil 18 is electrically energized to inductively heat the lower portion of the chamber 11 to form a heat zone 19", column 2, lines 17-19. Please note that the heating coil is capable of manipulating the glass temperature profile for the desired process.)
- c. the gland forming a seal of glass between the inner forming tube and an opening in a wall of the chamber ("The glass flows to effectively seal the narrow annular opening 13", column 2, lines 24-25).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
12. Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Senapati '926 (US Patent No. 6,128,926).
13. Regarding claim 14, Senapati '926 does not explicitly teach the rod has a diameter which varies at least 0.5% and no more than 5%. However, this diameter is a result effective variable, and it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use a rod of such diameter for the benefit of fitting the rod into the inlet and maintaining a consistent supply of glass for a reliable output and quality product. Please see *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).
14. Regarding claim 15, Senapati '926 does not explicitly teach the inlet has a diameter 0.5% to 5% smaller than the smallest diameter of the rod. However, this diameter is a result effective variable, and it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use such a diameter for the benefit of drawing down the preform rod to a desired diameter, without subjecting the preform rod to undue stresses from a larger change in diameter that could cause product defects. Please see *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

15. Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coucoulas '771 (US Patent No. 4,372,771) in view of Stong '479 (US Patent No. 2,613,479).

16. Regarding claim 28, Coucoulas '771 teaches hollow inner forming tube as described for claim 27 above. Coucoulas '771 does not teach an adjustment device operatively attached to a part of the hollow inner forming tube outside the chamber. In analogous art of glass tube forming, Stong '479 teaches an adjustment device operatively attached to a part of the hollow inner forming tube outside the chamber (column 2, lines 11-17, see also Fig. 1) for the benefit of enabling changing of the position of the inner tube to meet varying operating conditions. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Coucoulas '771 with the adjustment device of Stong '479 for the benefit of enabling changing of the position of the inner tube to meet varying operating conditions.

17. Regarding claim 29, Coucoulas '771 further teaches the inner forming tube is straight, the apparatus further comprising an inlet passage having an axis parallel to the inner forming tube and offset from the inner forming tube (column 2, lines 4-9, see also Figs. 1-4).

18. Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmitt '442 (US Patent No. 6,938,442) in view of Shofner '574 (US Patent No. 4,389,574).

19. Regarding claim 31, Schmitt '442 teaches:

- a. a plurality of feed drives ("drawing carriages 8a, 8b, 8c", column 6, lines 24-25)
- b. at least one of the feed drives being biased into engagement with the rod (column 7, lines 12-25)
- c. a sensor ("diameter-measuring device 13", column 7, line 5)
- d. a mechanism for varying the bias of the at least one feed drive in response to the sensor (column 7, lines 3-11).

Schmitt '442 does not teach a sensor for detecting rod section ends. In analogous art of glass manufacturing, Shofner '574 teaches a sensor for detecting rod section ends (column 3, lines 33-42) for the benefit of altering the production flow in response an altered signal to maintain proper operation and ensure a quality output. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Schmitt '442 with the rod section end sensor of Shofner '574 for the benefit of altering the production flow in response to an altered signal to maintain proper operation and ensure a quality output.

20. Regarding claim 32, Schmitt '442 further teaches the rod ends are abutting (column 6, lines 41-43, see also Fig. 1, items 1 and 10). Please note that while Schmitt '442's 2nd rod ("dummy cylinder 10", column 6, line 41) is not specifically described as a glass rod, the apparatus is capable of functioning in the same manner if it were.

21. Claims 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Senapati '926 (US Patent No. 6,128,926) in view of Bogdahn '428 (US Patent No. 6,098,428).

22. Regarding claim 37, Senapati '926 teaches:

- a. determining changes (column 5, lines 15-17)
- b. controlling the rate of feeding the rod in response to change (column 5, lines 15-25)
- c. the restriction is the inlet of a melting chamber ("opening or die 16", column 5, lines 8-9).

Senapati '926 does not teach determining changes in temperature at the restriction. In analogous art of glass forming, Bogdahn '428 teaches determining changes in temperature at a restriction ("pyrometer 14", column 11, lines 26-30, and "deformation zone 4", column 10, line 4. See also Fig. 1) for the benefit of altering desired process variables to ensure a consistent output and quality product. Please note that while this restriction is not a die inlet as in Senapati '926, the temperature is measured at the point at which the diameter of the glass rod is reduced. Bogdahn '428 also teaches several variables are input to a central process control unit which can output several variables. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the feed control and forming method of Senapati '926 with the temperature measurement and output controls of Bogdahn for the benefit of altering desired process variables to ensure a consistent output and quality product.

23. Regarding claim 38, Senapati '926 further teaches the melting chamber includes an outlet, the material forming a draw down at the outlet (column 5, lines 8-14, see also Fig. 1, items 13, 16, 20).

Conclusion

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent No. 3,146,082 (Hicks, Jr., et al)—alternative rod feeding apparatus.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin Snelting whose telephone number is (571)272-7169. The examiner can normally be reached on Monday to Thursday 8:00 to 6:00 and every other Friday 8:00 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571)272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven P. Griffin/

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